



MARYLAND DEPARTMENT OF THE ENVIRONMENT

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Robert L. Ehrlich, Jr., Governor
Michael S. Steele, Lt. Governor

Kendl P. Philbrick, Secretary
Jonas A. Jacobson, Deputy Secretary

NOV 1 2004

CERTIFIED MAIL 7002 0510 0002 0821 5434

The Honorable James M. Harkins
County Executive
Harford County Government
220 South Main Street
Bel Air, MD 21014-3865

Dear County Executive Harkins:

The Maryland Department of the Environment, Water Management Administration (MDE/WMA) has completed a review of Harford County's application for a National Pollutant Discharge Elimination System (NPDES) permit for discharges from its municipal separate storm sewer system. After discussing our draft permit conditions with your staff and allowing public comment, we have issued as final the County's NPDES permit. A copy of the permit is enclosed for your information and use.

You will note that the NPDES stormwater permit program is an enormous undertaking requiring a huge effort from Harford County. The Clean Water Act's stormwater regulations require permit conditions that effectively prohibit non-stormwater discharges and reduce the discharge of pollutants to the "maximum extent practicable." Over the past several years, your staff has worked diligently to meet the goals of these regulations. We feel that this permit will serve to solidify our current relationship and give us continued direction toward improving Maryland's water quality.

I would like to thank you and your staff for their outstanding efforts to date. Should you have any questions regarding the permit or the NPDES stormwater program in general, please contact me at (410) 537-3567 or have a member of your staff contact Mr. L. Kenneth Pensyl at (410) 537-3543.

Sincerely,

Robert M. Summers, Director
Water Management Administration

Enclosure
cc: Mr. Jerald Wheeler

MARYLAND DEPARTMENT OF THE ENVIRONMENT
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
MUNICIPAL SEPARATE STORM SEWER SYSTEM DISCHARGE PERMIT

PART I. IDENTIFICATION

A. **Permit Number:** 99-DP-3310 MD0068268

B. **Permit Area**

This permit covers stormwater discharges to and from the municipal separate storm sewer system owned and operated by Harford County, Maryland.

C. **Effective Date:** November 1, 2004

D. **Expiration Date:** November 1, 2009

PART II. DEFINITIONS

Terms used in this permit are defined in relevant chapters of the Code of Federal Regulations (CFR) or the Code of Maryland Regulations (COMAR). Terms not defined in CFR or COMAR shall have the meanings attributed by common use unless the context in which they are used clearly requires a different meaning.

PART III. STANDARD PERMIT CONDITIONS

A. **Permit Administration**

The County shall designate an individual to act as a liaison with the Maryland Department of the Environment (MDE) regarding permit issues. Additionally, the name, title, address, phone number, email address, and function of all primary administrative and technical personnel responsible for compliance with this permit shall be submitted to MDE. An organizational chart including the individuals identified above shall also be submitted and any changes immediately reported to MDE.

B. **Legal Authority**

Adequate legal authority shall be maintained in accordance with National Pollutant Discharge Elimination System (NPDES) regulations 40 CFR 122.26(d)(2)(i) throughout the term of this permit. In the event that any provision of its legal authority is found to be invalid, the County shall make the necessary changes to maintain adequate legal authority.

C. Source Identification

Sources of pollutants in stormwater runoff shall be identified and linked to specific water quality impacts on a watershed basis. This process shall be used to develop watershed restoration plans that effectively improve water quality. The following information shall be submitted in geographic information system (GIS) format with associated tables as required in PART IV of this permit:

1. Storm drain system: major outfalls, inlets, and associated drainage areas;
2. Urban best management practices (BMP): stormwater management facility data including locations and delineated drainage areas;
3. Impervious surfaces: delineated impervious areas including those associated with BMP implementation;
4. Monitoring locations: locations established for chemical, biological, and physical monitoring of watershed restoration efforts and the *2000 Maryland Stormwater Design Manual* or other innovative stormwater management technologies approved by MDE; and
5. Watershed restoration: restoration project descriptions and locations identified in PART III. G., below.

D. Discharge Characterization

Harford County and 10 other municipalities in Maryland have been conducting discharge characterization monitoring since the early 1990's. From this expansive monitoring, a statewide database has been developed that includes hundreds of storms across numerous land uses. Summaries of this dataset and other research performed nationally effectively characterize stormwater runoff in Maryland for NPDES municipal stormwater purposes. These data shall be used by Harford County for guidance to improve stormwater management programs and develop watershed restoration projects. Monitoring required under this permit is now designed to assess the effectiveness of stormwater management programs and watershed restoration projects developed by the County. Details about this monitoring can be found in PART III. H.

E. Management Programs

The following management programs shall be implemented in all areas served by the County's municipal separate storm sewer system. These jurisdiction-wide programs are designed to control stormwater discharges to the maximum extent practicable and shall be maintained for the term of this permit. Additionally, these programs are to be integrated with other permit requirements to promote a comprehensive approach toward solving water quality problems. The County shall address any needed program improvements identified as a result of periodic evaluation by MDE and annual self-assessment.

1. Stormwater Management

An acceptable stormwater management program shall be maintained in accordance with the Environment Article, Title 4, Subtitle 2, Annotated Code of Maryland. At a minimum, the County shall:

- a. Conduct preventative maintenance inspections of all stormwater management facilities at least on a triennial basis. Documentation identifying the facilities inspected, the number of maintenance inspections, follow-up inspections, the enforcement action(s) used to ensure compliance, the maintenance inspection schedules, and any other relevant information shall be submitted in the County's annual reports;
- b. Implement the stormwater management design policies, principles, methods, and practices found in the *2000 Maryland Stormwater Design Manual* or other innovative stormwater management technologies approved by MDE;
- c. Track the progress toward implementing the *2000 Maryland Stormwater Design Manual* or other innovative stormwater management technologies approved by MDE and report annually the modifications needed to address any programmatic problems; and
- d. Maintain programmatic and implementation information according to the requirements established as part of MDE's triennial stormwater program review.

2. Erosion and Sediment Control

An acceptable erosion and sediment control program shall be maintained in accordance with the Environment Article, Title 4, Subtitle 1, Annotated Code of Maryland. At a minimum, the County shall:

- a. Address any needed program improvements identified during MDE's evaluation of the County's application for the delegation of erosion and sediment control enforcement authority;
- b. At least twice per year, conduct responsible personnel certification classes to educate construction site operators regarding erosion and sediment control compliance. Program activity shall be recorded on MDE's "green card" database and submitted as required in PART IV of this permit; and
- c. Report quarterly, information regarding earth disturbances exceeding one acre or more. Quarters shall be based on calendar year and submittals shall be made within 30 days following each quarter. The information shall be specific to the permitting activity for the preceding three months.

3. Illicit Discharge Detection and Elimination

The County shall implement an inspection and enforcement program, or other alternative methods approved by MDE, to ensure that all discharges to and from the municipal separate storm sewer system that are not composed entirely of stormwater are either permitted by MDE or eliminated. At a minimum, activities shall include:

- a. Field screening at least 100 outfalls annually. Each outfall having a discharge shall be sampled using a chemical test kit;
- b. Conducting routine surveys of commercial and industrial watersheds for discovering and eliminating pollutant sources;
- c. Maintaining a program to address illegal dumping and spills;
- d. Using appropriate enforcement procedures for investigating and eliminating illicit discharges, illegal dumping, and spills. Significant discharges shall be reported to MDE for enforcement and/or permitting; and
- e. Reporting illicit discharge detection and elimination activities as specified in PART IV of this permit. Annual reports shall include any requests and accompanying justifications for proposed modifications to the illicit discharge detection and elimination program.

4. County Property Management

The County shall identify all County-owned and municipal facilities requiring NPDES stormwater general permit coverage and submit Notices of Intent (NOI) to MDE for each. The status of pollution prevention plan development and implementation shall be submitted annually.

5. Road Maintenance

A plan to reduce pollutants associated with road maintenance activities shall be developed and implemented. At a minimum, an annual progress report shall be submitted that documents the following activities:

- a. Street sweeping;
- b. Inlet cleaning;
- c. Reducing the use of pesticides, herbicides, fertilizers, and other pollutants associated with roadside vegetation management through the use of integrated pest management (IPM); and

- d. Controlling the overuse of winter weather deicing materials through continual testing and improvement of materials, equipment calibration, employee training, and effective decision-making.

6. Public Education

A public education and outreach program shall be implemented to reduce stormwater pollutants. Outreach efforts are to be integrated with all aspects of the County's activities. These efforts are to be documented and summarized in each annual report. At a minimum, the County shall:

- a. Establish and publicize a compliance hotline for the public reporting of suspected illicit discharges, illegal dumping, and spills.
- b. Provide information regarding the following water quality issues to the general public:
 - i. Water conservation;
 - ii. Stormwater management facility maintenance;
 - iii. Erosion and sediment control;
 - iv. Household hazardous waste;
 - v. Lawn care and landscape management (e.g., the proper use of herbicides, pesticides, and fertilizers, ice control and snow removal, cash for clippers, etc.);
 - vi. Litter control, recycling, and composting;
 - vii. Car care, mass transit, and alternative transportation;
 - viii. Private well and septic system management; and
 - ix. Pet waste management.
- c. Provide information regarding the following water quality issues to the regulated community when requested:
 - i. NPDES permitting requirements;
 - ii. Pollution prevention plan development;
 - iii. Proper housekeeping; and
 - iv. Spill prevention and response.

F. Watershed Assessment and Planning

The County shall continue the systematic assessment of water quality within all of its watersheds. These watershed assessments shall include detailed water quality analyses, the identification of water quality improvement opportunities, and the development and implementation of plans to control stormwater discharges to the maximum extent practicable. The overall goal is to ensure that each County watershed has been thoroughly evaluated and has an action plan to maximize water quality improvements.

At a minimum, the County shall:

1. Continue to perform detailed assessments of all watersheds in Harford County. These assessments shall be performed according to priorities established previously by the County and at an appropriate scale (e.g., Maryland's hierarchical twelve-digit sub-basins). At a minimum, watershed assessments shall:
 - a. Determine current water quality conditions;
 - b. Identify and rank water quality problems;
 - c. Identify all structural and non-structural water quality improvement opportunities;
 - d. Include the results of a visual watershed inspection;
 - e. Specify how the restoration efforts will be monitored; and
 - f. Provide an estimated cost and a detailed implementation schedule for those improvement opportunities identified above.
2. Perform watershed assessments until all land area in Harford County is covered by a specific action plan to address the water quality problems identified. At a minimum, the County shall perform a detailed watershed assessment for one County watershed during this permit term.
3. Provide, in the first annual report for this permit, a description of the progress made toward performing detailed watershed assessments for all land area in the County. Subsequent annual reports shall continue progress reporting and the detailed watershed assessment required in PART III. F.2. above shall be submitted no later than the fourth annual report.

G. Watershed Restoration

The County shall implement those practices identified in PART III. F. above to control stormwater discharges to the maximum extent practicable. The overall goal is to maximize the water quality in a single watershed, or combination of watersheds, using efforts that are definable and the effects of which are measurable. At a minimum, the County shall:

1. Complete the implementation of those restoration efforts that were identified and initiated during the previous permit term to restore ten percent of the County's impervious surface area. The watershed, or combination of watersheds where the restoration efforts are implemented shall be monitored according to PART III. H. below to determine effectiveness toward improving water quality.

2. Within one year of permit issuance, begin to implement restoration efforts in a watershed, or combination of watersheds, to restore an additional ten percent of the County's impervious surface area. These efforts shall be separate from those specified in PART III. G.1. above and shall be monitored according to PART III. H. below to determine effectiveness toward improving water quality.
3. Report annually:
 - a. The progress toward meeting the goals established in PART III. G.1. and 2. above;
 - b. The estimated cost and the actual expenditures for program implementation; and
 - c. The monitoring data and surrogate parameter analyses used to determine water quality improvements.

H. Assessment of Controls

Assessment of controls is critical for determining the effectiveness of the NPDES stormwater management program and progress toward improving water quality. Therefore, the County shall use chemical, biological, and physical monitoring to document work toward meeting the watershed restoration goals identified in PART III. G. above. Additionally, the County shall continue physical stream monitoring in the Church Creek watershed to assess the implementation of the *2000 Maryland Stormwater Design Manual* or other innovative stormwater management technologies approved by MDE. Specific monitoring requirements are described below.

1. Watershed Restoration Assessment

The County shall continue monitoring in the Winters Run watershed, or, select and submit for MDE's approval a new watershed restoration project for monitoring. Monitoring activities shall occur where the cumulative effects of watershed restoration activities can be assessed. An outfall and associated in-stream station, or other locations based on a study design approved by MDE, shall be monitored. The minimum criteria for chemical, biological, and physical monitoring are as follows:

- a. Chemical Monitoring:
 - i. Eight (8) storm events shall be monitored per year at each monitoring location with at least two occurring per quarter. Quarters shall be based on the calendar year. If extended dry weather periods occur, baseflow samples shall be taken at least once per month at the monitoring stations if flow is observed;

- ii. Discrete samples of stormwater flow shall be collected at the monitoring stations using automated or manual sampling methods. Measurements of pH and water temperature shall be taken;
- iii. At least three (3) samples determined to be representative of each storm event shall be submitted to a laboratory for analysis according to methods listed under 40 CFR Part 136 and event mean concentrations (EMC) shall be calculated for:

Biochemical Oxygen Demand (BOD ₅)	Total Lead
Total Kjeldahl Nitrogen (TKN)	Total Copper
Nitrate plus Nitrite	Total Zinc
Total Suspended Solids	Total Phosphorus
Total Petroleum Hydrocarbons (TPH)	Oil and Grease*
Fecal Coliform or E. coli	(*Optional).

- iv. Continuous flow measurements shall be recorded at the in-stream monitoring station or other practical locations based on an approved study design. Data collected shall be used to estimate annual and seasonal pollutant loads and for the calibration of watershed assessment models;

b. Biological Monitoring:

- i. Benthic macroinvertebrate samples shall be gathered each Spring between the outfall and in-stream stations or other practical locations based on an approved study design; and
- ii. The County shall use the U.S. Environmental Protection Agency's (EPA) Rapid Bioassessment Protocols (RBP), Maryland Biological Stream Survey (MBSS), or other similar method approved by MDE.

c. Physical Monitoring:

- i. A geomorphologic stream assessment shall be conducted between the outfall and in-stream monitoring locations or in a reasonable area based on an approved study design. This assessment shall include an annual comparison of permanently monumented stream channel cross-sections and the stream profile;
- ii. A stream habitat assessment shall be conducted using techniques defined by the EPA's RBP, MBSS, or other similar method approved by MDE; and
- iii. A hydrologic and/or hydraulic model shall be used (e.g., TR-20, HEC-2, HSPF, SWMM, etc.) to analyze the effects of rainfall; discharge rates; stage; and, if necessary, continuous flow on channel geometry.

- d. Annual Data Submittal: The County shall describe in detail its monitoring activities for the previous year and include the following:
 - i. EMCs submitted on MDE's long-term monitoring database as specified in PART IV. A.2.d. below;
 - ii. Chemical, biological, and physical monitoring results and a combined analysis for the Winters Run or other approved monitoring locations; and
 - iii. Any requests and accompanying justifications for proposed modifications to the monitoring program.

2. Stormwater Management Assessment

The County shall continue monitoring the Church Creek Watershed for determining the effectiveness of stormwater management practices for stream channel protection. Physical stream monitoring protocols shall include:

- a. An annual stream profile and survey of permanently monumented cross-sections at an unnamed tributary to Church Creek to evaluate channel stability in conjunction with the residential development of Wexford;
- b. A comparison of the annual stream profile and survey of the permanently monumented cross-sections with baseline conditions for assessing areas of aggradation and degradation; and
- c. A hydrologic and/or hydraulic model shall be used (e.g., TR-20, HEC-2, HEC-RAS, HSPF, SWMM, etc.) to analyze the effects of rainfall; discharge rates; stage; and, if necessary, continuous flow on channel geometry.

I. Program Funding

- 1. Annually, a fiscal analysis of the capital, operation, and maintenance expenditures necessary to comply with all conditions of this permit shall be submitted as required in PART IV below.
- 2. Adequate program funding to comply with all conditions of this permit shall be maintained.

J. Total Maximum Daily Loads

Stormwater BMPs and programs implemented as a result of this permit must be consistent with available waste load allocations (WLA's) [see 40 CFR 122.44(d)(1)(vii)(B)] developed under a Total Maximum Daily Load (TMDL). MDE has determined that owners of storm drain systems that implement the requirements of this permit will be controlling stormwater pollution to the maximum extent practicable. Therefore, satisfying the conditions of this permit will meet WLA's specified in TMDL's

developed for impaired water bodies. If assessment of the stormwater management program indicates TMDL WLAs are not being met, additional or alternative stormwater controls must be implemented to achieve WLAs.

PART IV. PROGRAM REVIEW AND ANNUAL PROGRESS REPORTING

A. Annual Reporting

1. Annual progress reports, required under 40 CFR 122.42(c), will facilitate the long-term assessment of Harford County's NPDES stormwater program.

The County shall submit annual reports on or before the anniversary date of this permit that include:

- a. The status of implementing the components of the stormwater management program that are established as permit conditions;
 - b. A narrative summary describing the results and analyses of data, including monitoring data that is accumulated throughout the reporting year;
 - c. Expenditures for the reporting period and the proposed budget for the upcoming year;
 - d. A summary describing the number and nature of enforcement actions, inspections, and public education programs; and
 - e. The identification of water quality improvements or degradation.
2. To further judge the effectiveness and progress of implementing this permit, the following information shall be submitted on databases (in a format) consistent with Attachment A. Annually, except where noted, the following shall be submitted:
 - a. Storm drain system mapping (PART III. C.1.);
 - b. Urban BMP locations (PART III. C.2.);
 - c. Impervious surfaces (PART III. C.3.);
 - d. Chemical monitoring (PART III. C.4. and PART III. H.1.);
 - e. Watershed restoration project locations (PART III. C.5.);
 - f. Responsible personnel certification information (PART III. E.2.);
 - g. Grading permit information – quarterly (PART III. E.2.);

- h. Illicit Discharge Detection and Elimination activities (PART III. E.3.); and
- i. Fiscal analyses - cost for NPDES related implementation (PART III. I.).

B. Program Review

In order to assess the effectiveness of the County's NPDES program for eliminating non-stormwater discharges and reducing the discharge of pollutants to the maximum extent practicable, MDE will review program implementation, annual reports, and periodic data submittal on an annual basis. Procedures for the review of local erosion and sediment control and stormwater management programs exist in Maryland's Sediment Control and Stormwater Management Laws. Additional periodic evaluations will be conducted to determine compliance with permit conditions.

C. Reapplication for NPDES Stormwater Discharge Permit

Continuation or reissuance of this permit beyond November 1, 2009 will require the County to reapply for NPDES stormwater discharge permit coverage in its fourth year annual report. As part of this application process, Harford County shall submit to MDE an executive summary of its NPDES stormwater management program that specifically describes how water quality goals set by the County are being achieved. This application shall be used to gauge the effectiveness of the County's NPDES stormwater program and will provide guidance for developing future permit conditions. At a minimum, the application summary shall include:

1. Harford County's NPDES stormwater program goals;
2. Program summaries for the permit term regarding:
 - a. Illicit connection detection and elimination results;
 - b. Watershed restoration status including County totals for impervious acres, impervious acres controlled by stormwater management, and the current status of watershed restoration projects and acres managed;
 - c. Pollutant load reductions as a result of this permit; and
 - d. Other relevant data and information for describing County programs;
3. Program operation and capital improvement costs for the permit term; and
4. Descriptions of any proposed permit condition changes based on analyses of the successes and failures of the County's efforts to comply with the conditions of this permit.

PART V. SPECIAL PROGRAMMATIC CONDITIONS

Since the signing of the Chesapeake Bay Agreement in 1983, Maryland has been working toward reducing the discharge of nutrients and sediments to Chesapeake Bay. Harford County lies within the Upper Western Shore, one of the Bay's ten major tributaries. This NPDES permit encourages Harford County to assist with the implementation of the Tributary Strategy designed to meet the nutrient and sediment reduction goals of the tributary.

PART VI. ENFORCEMENT AND PENALTIES

A. Discharge Prohibitions and Receiving Water Limitations

The County shall effectively prohibit non-stormwater discharges through its municipal separate storm sewer system. NPDES permitted non-stormwater discharges are exempt from this prohibition. Discharges from the following will not be considered a source of pollutants when properly managed: water line flushing; landscape irrigation; diverted stream flows; rising ground waters; uncontaminated ground water infiltration to separate storm sewers; uncontaminated pumped ground water; discharges from potable water sources; foundation drains; air conditioning condensation; irrigation waters; springs; footing drains; lawn watering; individual residential car washing; flows from riparian habitats and wetlands; dechlorinated swimming pool discharges; street wash water; and fire fighting activities. The discharge of stormwater containing pollutants, which have not been reduced to the maximum extent practicable, is prohibited. The County shall not cause the contamination or other alteration of the physical, chemical, or biological properties of any waters of the State, including a change in temperature, taste, color, turbidity, or odor of the waters or the discharge or deposit of any organic matter, harmful organism, or liquid, gaseous, solid, radioactive, or other substance into any waters of the State, that will render the waters harmful to:

1. Public health, safety, or welfare;
2. Domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial use;
3. Livestock, wild animals, or birds; or
4. Fish or other aquatic life.

B. Duty to Mitigate

The County shall take all reasonable steps to minimize or prevent any discharge in violation of this permit, which has a reasonable likelihood of adversely affecting human health or the environment.

C. Duty to Comply

The County must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act (CWA) and is grounds for enforcement action; permit termination, revocation, or modification; or denial of a permit renewal application. The County shall comply at all times with the provisions of the Environment Article, Title 4, Subtitles 1, 2, and 4; Title 7, Subtitle 2; and Title 9, Subtitle 3 of the Annotated Code of Maryland.

The County shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the County to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems, which are installed by the County only when the operation is necessary to achieve compliance with the conditions of the permit.

D. Sanctions

1. Penalties Under the CWA - Civil and Criminal

The CWA provides that any person who violates any permit condition is subject to a civil penalty not to exceed \$27,500 per day for each violation. Any person who negligently violates any permit condition is subject to criminal penalties of \$2,750 to \$27,500 per day of violation, or imprisonment of not more than 1 year, or both. Any person who knowingly violates any permit condition is subject to criminal penalties of \$5,000 to \$50,000 per day of violation, or imprisonment for not more than 3 years, or both.

2. Penalties Under the State's Environment Article - Civil and Criminal

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the County from civil or criminal responsibilities and/or penalties for noncompliance with Title 4, Title 7, and Title 9 of the Environment Article, Annotated Code of Maryland, or any federal, local, or other State law or regulation. The Environment Article, §9-342, Annotated Code of Maryland, provides that any person who violates a permit condition is subject to a civil penalty up to \$1,000 for each violation, but not exceeding \$50,000 total. The Environment Article, §9-343, Annotated Code of Maryland, provides that any person who willfully or negligently violates a permit condition is subject to a criminal penalty not exceeding \$25,000 or imprisonment not exceeding 1 year, or both.

The Environment Article, §9-343, Annotated Code of Maryland, provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six months per violation, or both.

The Environment Article, §9-343, Annotated Code of Maryland, provides that any person who knowingly makes any false statement, representation, or certification in any records or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six months per violation, or both.

E. Permit Revocation and Modification

1. Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the County for a permit modification or a notification of planned changes or anticipated noncompliance does not stay any permit condition. A permit may be modified by MDE upon written request by the County and after notice and opportunity for a public hearing in accordance with and for the reasons set forth in COMAR 26.08.04.10.

After notice and opportunity for a hearing and in accordance with COMAR 26.08.04.10., MDE may modify, suspend, or revoke and reissue this permit in whole or in part during its term for causes including, but not limited to the following:

- a. Violation of any terms or conditions of this permit;
- b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;
- c. A change in any condition that requires either a temporary reduction or elimination of the authorized discharge; or
- d. A determination that the permitted discharge poses a threat to human health or welfare or to the environment and can only be regulated to acceptable levels by permit modification or termination.

2. Duty to Provide Information

The County shall furnish to MDE, within a reasonable time, any information that MDE may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit; or to determine compliance with this permit. The County shall also furnish to MDE, upon request, copies of records required to be kept by this permit.

F. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, State, or local law or regulations.

G. Severability

The provisions of this permit are severable. If any provision of this permit shall be held invalid for any reason, the remaining provisions shall remain in full force and effect. If the application of any provision of this permit to any circumstance is held invalid, its application to other circumstances shall not be affected.

H. Signature of Authorized Administrator and Jurisdiction

All applications, reports, or information submitted to MDE shall be signed as required by COMAR 26.08.04.01-1. As in the case of municipal or other public facilities, signatories shall be a principal executive officer, ranking elected official, or other duly authorized employee.



Robert M. Summers, Director
Water Management Administration

Nov. 1, 2004

Date

Attachment A Annual Report Databases

As part of the NPDES annual reporting process, municipalities are required to complete databases for urban best management practice inventory, chemical monitoring, erosion and sediment control responsible personnel training, quarterly grading permit summaries, pollution prevention, storm drain systems, impervious surfaces, and fiscal analyses. Examples of these databases and definitions for each category are provided below. For compatibility purposes, databases should be submitted in any one of the following formats: Access, Excel, Quattro Pro, Lotus 1-2-3, or any file with a .dbf extension (e.g., dBase,). Preferably, any file in a format other than Access or Excel should be submitted in a ".dbf" format. If there are any questions regarding the compatibility of databases, please contact the Water Management Administration's Sediment, Stormwater, and Dam Safety Program at (410) 537-3543.

A. Storm Drain System Mapping (PART III.C.1.) (associated with GIS coverage)

Field	Field Name	Field Type	Width	Description
1	OUTFALL ID	Text	15	Outfall ID that can be linked to Pollution Prev. Table
2	MD NORTH	Number	8	Maryland Grid Coordinates
3	MD EAST	Number	8	Maryland Grid Coordinates
4	DIM_OUTFL	Number	3	Outfall Dimensions in inches
5	TYPE_OUTFL	Text	3	Outfall Type
6	DRAIN_AREA	Number	4	Drainage area to outfall

B. Urban Best Management Practices (BMP) (PART II.C.2.) (associated with GIS coverage)

Field	Field Name	Field Type	Width	Description
1	STRU_NO	Text	4	Unique structure number
2	PERMIT_NO	Text	10	Unique permit number
3	STRU_NAME	Text	60	Structure name
4	ADDRESS	Text	50	Structure address
5	CITY	Text	15	Structure address
6	STATE	Text	2	Structure address
7	ZIP	Text	5	Structure address
8	MD NORTH	Number	8	Maryland grid coordinate (NAD 83 meters)
9	MD EAST	Number	8	Maryland grid coordinate (NAD 83 meters)
10	ADC_MAP	Text	5	ADC map book coordinate (optional if 8/9)
11	SBASIN_NO	Text	17	State watershed number
12	STRU_TYPE ¹	Text	10	Structure type
13	LAND_USE ²	Text	3	MOP land use/land cover code (attached)
14	DRAIN_AREA	Number	8	Structure drainage area (acres)
15	TOT_DRAIN	Number	8	Total site area (acres)
16	RCN	Number	8	Runoff curve number (weighted)
17	ON_OFF_SIT	Text	3	On or offsite structure
18	APPR_DATE	Date/Time	8	Permit approval date
19	BUILT_DATE	Date/Time	8	Construction completion date
20	GEN_COMNT	Text	60	General comments (e.g., redundant controls)
21	LAST_CHANGE	Date/Time	8	Date last change made to this record

¹Use Attached BMP Structure Codes

²Use Attached MdOP Land Use Codes

C. Impervious Surfaces (PART III.C.3.) (associated with GIS coverage)

Field	Field Name	Field Type	Width	Description
1	ACREAGE	Number	8	Impervious area acreage
2	CONTROLLED	Number	8	Area controlled by BMPs
3	UNCONTROLLED	Number	8	Area without BMP controls
4	RESTORATION_P	Number	8	10% goal for watershed restoration
5	RESTORATION_C	Number	8	Watershed restoration completed

D. Watershed Restoration Project Locations (PART III.C.5.)

Field	Field Name	Field Type	Width	Description
1	PROJECT NAME	Text	30	Name of project
2	PROJECT TYPE	Text		New BMP, retrofit, street sweeping, inlet cleaning Litter collection, hazardous waste, education
3	PROJECT CATEG	Text	25	New BMP, Retrofit, Education, SD maint.
4	DESCRIPTION	Text	60	Brief Description of the project
5	MD_NORTH	Number	10	Maryland grid coordinate (NAD 83 meters)
6	MD_EAST	Number	10	Maryland grid coordinate (NAD 83 meters)
7	DRAIN_AREA	Number	8	Drainage area in acres

E. Chemical Monitoring Site Locations (PART III.C.4.)

Field	Field Name	Field Type	Width	Description
1	YEAR	Text	4	Annual Report Year
2	STATION	Text	30	Name of station
3	TYPE	Text	10	Outfall or instream station
4	BAY_TRIB	Text	30	Chesapeake Bay tributary designation
5	PHYS_PROV	Text	30	Maryland physiographic province
6	MD_NORTH	Number	10	Maryland grid coordinate (NAD 83 meters)
7	MD_EAST	Number	10	Maryland grid coordinate (NAD 83 meters)
8	DRAIN_AREA	Number	8	Drainage area in acres
9	LU1	Text	8	Predominant land use
10	DA_LU1	Number	8	Drainage area in acres
11	LU2	Text	8	Second most dominant land use
12	DA_LU2	Number	8	Drainage area in acres
13	LU3	Text	8	Third most dominant land use
14	DA_LU3	Number	8	Drainage area in acres
15	SWM1 ¹	Text	10	Structural BMP #1 in drainage area
16	SWM_DA1	Number	8	Total acres of drainage area treated by structural BMP #1
17	SWM2 ¹	Text	10	Structural BMP #2 in drainage area
18	SWM_DA2	Number	8	Total acres of drainage area treated by structural BMP #2
19	SWM3 ¹	Text	10	Structural BMP #3 in drainage area
20	SWM_DA3 ²	Number	8	Total acres of drainage area treated by structural BMP #3
21	NON_STRUCT	Text	30	List all non-structural BMPs, such as education, which are being intensely focused in drainage area
22	AREA_NON_STRUCT	Number	8	Total acres of drainage area treated by non-structural BMPs

¹Use Attached BMP Structure Codes

²Create additional SWM fields for additional structures if necessary

F. Chemical Monitoring (PART III.H.1.)

Field	Field Name	Type	Width	Description
1	Jurisdiction	Text	30	Monitoring Jurisdiction Name
2	Date	Date	10	Date of storm event
3	Time	Time	10	Time monitoring begins
4	Station name	Text	30	Station name
5	Restoration or in-stream	Text	10	Restoration or in-stream cross-section
6	Storm or Baseflow	Text	10	Storm or baseflow sample
7	Depth	Number	5	Depth of rain in inches
8	Duration	Time	10	Duration of event in hours and minutes
9	Intensity	Number	10	Intensity = Depth/Duration
10	Total Storm Flow Volume	Number	10	Total Storm Flow Volume in Gallons
11	Water Temp	Number	5	Flow weighted average of water temperature (Fahrenheit)
12	Ph	Number	8	Flow weighted average of pH
13	BOD	dt	Number	Record Biological Oxygen Demand detection limit used in analysis
		EMC (0)	Number	Enter EMC for Biological Oxygen Demand in mg/l using (0)*
		EMC (dt)	Number	Enter EMC for Biological Oxygen Demand in mg/l using (dt)**
14	TKN	dt	Number	Record Total Kjeldahl Nitrogen detection limit used in analysis
		EMC (0)	Number	Enter EMC for Total Kjeldahl Nitrogen in mg/l using (0)*
		EMC (dt)	Number	Enter EMC for Total Kjeldahl Nitrogen in mg/l using (dt)**
15	Nitrate + Nitrite	dt	Number	Record Nitrate + Nitrite detection limit used in analysis
		EMC (0)	Number	Enter EMC for Nitrate + Nitrite in mg/l using (0)*
		EMC (dt)	Number	Enter EMC for Nitrate + Nitrite in mg/l using (dt)**
16	Total Phosphorus	dt	Number	Record Total Phosphorus detection limit used in analysis
		EMC (0)	Number	Enter EMC for Total Phosphorus in mg/l using (0)*
		EMC (dt)	Number	Enter EMC for Total Phosphorus in mg/l using (dt)**
17	TSS	dt	Number	Record Total Suspended Solids detection limit used in analysis
		EMC (0)	Number	Enter EMC for Total Suspended Solids in mg/l using (0)*
		EMC (dt)	Number	Enter EMC for Total Suspended Solids in mg/l using (dt)**
12	Total Copper	dt	Number	Record Total Copper detection limit used in analysis
		EMC (0)	Number	Enter EMC for Total Copper in ug/l using (0)*
		EMC (dt)	Number	Enter EMC for Total Copper in ug/l using (dt)**
19	Total Lead	dt	Number	Record Total Lead detection limit used in analysis
		EMC (0)	Number	Enter EMC for Total Lead in ug/l using (0)*
		EMC (dt)	Number	Enter EMC for Total Lead in ug/l using (dt)**
20	Total Zinc	dt	Number	Record Total Zinc detection limit used in analysis
		EMC (0)	Number	Enter EMC for Total Zinc in ug/l using (0)*
		EMC (dt)	Number	Enter EMC for Total Zinc in ug/l using (dt)**
21	TPH	dt	Number	Record detection limit used in analysis
		EMC (0)	Number	Enter EMC for Total Petroleum Hydrocarbons in mg/l using (0)*
		EMC (dt)	Number	Enter EMC for Total Petroleum Hydrocarbons in mg/l using (dt)**
22	Oil & Grease	dt	Number	Record Oil & Grease detection limit used in analysis
		EMC (0)	Number	Enter EMC for Oil & Grease in mg/l using (0)*
		EMC (dt)	Number	Enter EMC for Oil & Grease in mg/l using (dt)**
23	Fecal Coliform	dt	Number	Record Fecal Coliform detection limit used in analysis
		EMC (0)	Number	Enter EMC for Fecal Coliform in MPN/100ml using (0)*
		EMC (dt)	Number	Enter EMC for Fecal Coliform in MPN/100ml using (dt)**
24	E. Coli	dt	Number	Record E. Coli detection limit used in analysis
		EMC (0)	Number	Enter EMC for E. Coli in MPN/100ml using (0)*
		EMC (dt)	Number	Enter EMC for E. Coli in MPN/100ml using (dt)**
25	Local Concern 1	dt	Number	Record detection limit used in analysis
		EMC (0)	Number	Enter EMC for in mg/l using (0)*
		EMC (dt)	Number	Enter EMC for in mg/l using (dt)**
26	Local Concern 2	dt	Number	Record detection limit used in analysis
		EMC (0)	Number	Enter EMC for in mg/l using (0)*
		EMC (dt)	Number	Enter EMC for in mg/l using (dt)**
27	Comments	Text	50	Monitoring comments/documentation

* EMC (0) = Flow weighted averages for three discrete samples representative of a storm using zero (0) for any discrete samples recorded less than the detection limit.

Chemical Monitoring (continued)

** EMC (dt) = Flow weighted averages for three discrete samples representative of a storm using the detection limit value (dt) for any discrete samples recorded less than the detection limit.

mg/l = milligrams per liter

µg/l = micrograms per liter

MPN = most probable number per 100 milliliters

G. Illicit Discharge Detection and Elimination (PART III.E.3)

Field	Field Name	Field Type	Width	Description
1	OUTFALL ID	Text	15	Outfall ID that can be linked to storm drain map
2	SCREENDATE	Date/Time	8	Field Screening Date
3	TEST_NUM	Number	2	Initial screening, follow-up test, 3rd, etc.
4	LAST_RAIN	Date/Time	8	Date of Last Rain > 0.10"
5	TIME	Date/Time	8	Field Screening Time
6	MD NORTH	Number	8	Maryland Grid Coordinates (NAD 83 meters)
7	MD EAST	Number	8	Maryland Grid Coordinates (NAD 83 meters)
8	DIM_OUTFL	Text	10	Outfall Dimensions in inches
9	TYPE_OUTFL	Text	3	Outfall Type
10	OBSERV_FLOW	Logical	1	Was flow observed?
11	CFS_FLOW	Number	5	Flow rate in cubic feet per second (CFS)
12	WAT_TEMP	Number	5	Water Temperature (Celsius)
13	AIR_TEMP	Number	3	Air Temperature in (Celsius)
14	CHEM_TEST	Logical	1	Was chemical test performed?
15	PH	Number	3	pH meter reading
16	PHENOL	Number	6	Milligrams per Liter (mg/L)
17	CHLORINE	Number	6	mg/L
18	DETERGENTS	Number	6	mg/L
19	COPPER	Number	6	mg/L
20	ALGAEGROW	Logical	1	Was algae growth observed?
21	ODOR	Text	2	Type of odor ²
22	COLOR	Text	2	Discharge color ²
23	CLARITY	Text	2	Discharge clarity ²
24	FLOATABLES	Text	2	Floatables in discharge ²
25	DEPOSITS	Text	2	Deposits in outfall area ²
26	VEG_COND	Text	2	Vegetative condition in outfall area ²
27	STRUCT_COND	Text	2	Structural condition of outfall ²
28	EROSION	Text	2	Erosion in outfall area ²
29	LANDUSE ¹	Text	2	Predominant land use draining to outfall
30	DRAIN_AREA	Number	4	Drainage area to outfall
31	COMPLAINT	Logical	1	Is screening complaint driven?
32	ILLICIT_Q	Logical	1	Was illicit discharge found?
33	ILLICIT_ELIM	Logical	1	Was illicit discharge eliminated?

¹Use Attached MdOP Land Use Codes

²Use Attached Pollution Prevention Activities Codes

H. Responsible Personnel Certification Information (PART III.E.3.b.)

Field	Field Name	Field Type	Width	Description
1	PREFIX	Text	2	MR, MS
2	FIRSTNAME	Text	15	First Name
3	LASTNAME	Text	15	Last Name
4	ADDRESS	Text	50	Full Address
5	CITY	Text	35	City
6	STATE	Text	2	State
7	ZIP	Number	9	Zip Code
8	PHONE	Number	10	Phone number
9	DATE	Date/Time	8	Date of class
10	CERTNUM	Number	6	Certification number as provided by MDE
11	COMPANY	Text	30	Employer
12	COMP_ADDRESS	Text	30	Employer Address
13	COMP_PHONE	Number	10	Employer Phone
14	INSTRUCTOR	Text	20	Instructor's Last Name

I. Grading Permit Information - quarterly (PART III.E.3.c.)

Field	Field Name	Field Type	Width	Description
1	SITE NAME	Text	60	Construction site name
2	SITE OWNER	Text	60	Construction site owner
3	OWNER ADDRESS	Text	50	Owner address
4	OWNER CITY	Text	15	Owner address
5	OWNER ZIP CODE	Number	10	Owner zip code
6	SITE ADDRESS	Text	50	Site address
7	SITE CITY	Text	15	Site address
8	SITE ZIP CODE	Number	10	Site zip code
9	MD NORTH	Number	8	Maryland grid coordinate (NAD 83 meters) – site
10	MD EAST	Number	8	Maryland grid coordinate (NAD 83 meters) – site
11	DIST AREA	Number	6	Disturbed area of site in acres
12	GRAD PERM	Text	10	Local grading permit number
13	APPR DATE	Date/Time	8	Plan approval date
14	LAND USE ¹	Text	3	MOP land use/land cover code (attached)

¹Use Attached MdOP Land Use Codes

J. Fiscal Analyses (PART III.I.)

Permit Condition	Year 1	Year 2	Year 3	Year 4	Year 5
B. Legal Authority	\$				
C. Source Identification					
1. GIS	\$				
2. Database maintenance	\$				
D. Management Programs					
1. Stormwater Management	\$				
2. Pollution Prevention	\$				
3. Erosion and Sediment	\$				
4. Public Education	\$				
5. Road Maintenance	\$				
Street Sweeping	\$				
Inlet Cleaning	\$				
E. Watershed Assessment and Planning					
1. Assessment/evaluation	\$				
2. Restoration Projects	\$				
F. Watershed Restoration	\$				
1. 10% restoration	\$				
2. Water quality improvement monit.	\$				
G. Assessment of Controls	\$				
1. Chemical Monitoring	\$				
2. Biological Monitoring	\$				
3. Physical Stream Assessment	\$				
4. Design Manual Monitoring	\$				
TOTAL	\$				

BMP Structure Codes

Structure Name	Structure Code	Structure Function
Artificial Wetlands	SM	See Shallow Marsh Structures
Check Dam	CD	A small dam constructed in a gully or other small waterway to decrease flow velocity (by reducing the channel gradient), minimize scour, & promote deposition of sediment
Detention Structure (Dry Pond)	DP	Designed to store runoff without creating a permanent pool
Dry Well	DW	An infiltration trench variant designed to exclusively accommodate rooftop runoff
Extended Detention Structure (Two types):	ED	Designed to temporarily detain a portion of runoff for up to 24 hrs after a storm using a fixed orifice to regulate outflow at a specific rate, allowing solids & associated time to settle out
1) Extended Detention Structure, Dry	EDSD	Designed for the temporary storage of runoff associated with at least a 24 hr 1-year storm without creating a permanent pool of water
2) Extended Detention Structure, Wet	EDSW	Designed for the storage of runoff associated with at least a 24 hr 1-year storm. The detained water drains partially & the remaining portion creates a permanent pool
Grass Swale	GS	Open vegetated channel used to convey runoff and provide treatment by filtering pollutants and sediment
Hydrodynamic Structure aka:		An engineered structure used to separate sediments and oils from stormwater runoff using gravitational separation and/or hydraulic flow
1) Oil grit separator	OGS	
2) Bay Saver©	BS	
3) Stormceptor©	SC	
Infiltration Basin	IB	Designed to allow stormwater to infiltrate into permeable soils. It differs from a retention structure in that it may include a back-up underdrain pipe to ensure eventual removal of standing water
Infiltration Trench (Three types):	IT	An excavated trench that has been backfilled with exposed or unexposed stones to form an underground reservoir (Also see Dry Well)
1) Complete Exfiltration	ITCE	Runoff can only exit the trench by exfiltrating through the stone reservoir into the underlying soils
2) Partial Exfiltration	ITPE	Runoff exits the trench by exfiltrating a) through the stone reservoir into the underlying soil, and b) via a perforated underdrain at the bottom of the trench that diverts runoff to a central outlet Storage volume is set to receive only the first ½" of runoff (first flush) from an impervious area of the watershed
3) Water Quality Exfiltration	ITWQE	

Level Spreader	LS	A device for distributing stormwater uniformly over the ground surface as sheet flow to prevent concentrated, erosive flow and promote infiltration
Porous Pavement	PP	A porous asphalt surface designed to have bearing strength similar to conventional asphalt but provides a rapid conduit for runoff to reach a subsurface stone reservoir
Retention Structure (Wet Pond)	WP	A permanent structure designed to provide runoff storage by means of a permanent pool (Title 26). Dissipation of water is solely via infiltration, evaporation, or emergency bypass
Sand Filter	SF	A bed of sand to which the first flush of runoff is diverted. Water leaving the filter is collected in underground pipes & returned to a waterway. A layer of peat, limestone, and/topsoil may be added to improve removal efficiency
Shallow Marsh	SM	A structure with a permanent pool planted with wetland vegetation often designed to provide extended detention
Underground Storage	UGS	Vault like structure designed for the temporary storage of storm flow
Water Quality Inlet	OGS	See Oil Grit Separator
Vegetated Buffer	VB	A vegetated protective zone of variable width located along both sides of a waterway

1997 MdOP Land Use/Land Cover

10 Urban Built-up

- **11 Low Density Residential** – Detached single family/duplex dwelling units, yards, and associated areas. Areas of more than 90 percent single family/duplex dwelling units, with lot sizes less than five acres but at least one-half acres (.2 dwelling units/acre to 2 dwelling units/acre).
- **12 Medium Density Residential** – Detached single family/duplex, attached single unit row housing, yards, and associated areas. Areas of more than 90 percent single family/duplex units and attached single unit row housing, with lot sizes of less than one-half acre but at least one-eighth acre (2 dwelling units/acre to 8 dwelling units/acre).
- **13 High Density Residential** – Attached single unit row housing, garden apartments, high rise apartments/condominiums, mobile home and trailer parks. Areas of more than 90 percent high density residential units, with more than 8 dwelling units/acre.
- **14 Commercial** – Retail and wholesale services. Areas used primarily for the sale of products and services, including associated yards and parking areas.
- **15 Industrial** – Manufacturing and industrial parks, including associated warehouses, storage yards, research laboratories, and parking areas.
- **16 Institutional** – Elementary and secondary schools, middle schools, junior and senior high schools, public and private colleges and universities, military installations (built-up areas only, including buildings and storage, training, and similar areas) churches and health facilities, correctional facilities, and government offices and facilities that are clearly separable from the surrounding land cover.

- **17 Extractive** – Surface mining operations, including sand and gravel pits, quarries, coal surface mines, and deep coal mines. Status of activity (active vs. abandoned) is not distinguished.
- **18 Open Urban Land** – Urban areas whose use does not require structures, or urban areas where non-conforming uses characterized by open land have become isolated. Included are golf courses, parks, recreation areas (except associated with schools or other institutions), cemeteries, and entrapped agricultural and undeveloped land within urban areas.
- **191 Large Lot Subdivision (Agriculture)** – Residential subdivisions with lot sizes less than 20 acres but at least 5 acres, with a dominant land cover of open fields or pasture.
- **192 Large Lot Subdivision (Forest)** - Residential subdivisions with lot sizes less than 20 acres but at least 5 acres, with a dominant land cover of deciduous, evergreen or mixed forest.

20 Agriculture

- **21 Cropland** – Field and forage crops.
- **22 Pasture** – Land used for pasture, both permanent and rotated: grass.
- **23 Orchards/Vineyards/Horticulture** – Areas of intensively managed commercial bush and tree crops, including areas used for fruit production, vineyards, sod and seed farms, nurseries, and green houses.
- **24 Feeding Operations** – Cattle or hog feeding lots, poultry houses, and holding lots for animals, and commercial fishing areas (including oyster beds).
- **241 Feeding Operations** – Cattle or hog feeding lots, poultry houses, and holding lots for animals.
- **242 Agricultural Building** – Breeding and training facilities, storage facilities, built-up areas associated with a farmstead, small farm ponds, and commercial fishing areas.
- **25 Row and Garden Crops** – Intensively managed track and vegetable farms and associated areas.

40 Forest

- **41 Deciduous Forest** – Forested areas in which the trees characteristically lose their leaves at the end of the growing season. Included are such species as oak, hickory, aspen, sycamore, birch, yellow poplar, elm, maple, and cypress.
- **42 Evergreen Forest** - Forested areas in which the trees are characterized by persistent foliage throughout the year. Included are such species as white pine, pond pine, hemlock, southern white cedar, and red pine.
- **43 Mixed Forest** – Forested areas in which neither deciduous or evergreen species dominate, but in which there is a combination of both types.
- **44 Brush** – Areas that do not produce timber or other wood products but may have cut-over timber stands, abandoned agriculture fields, or pasture. These areas are characterized by vegetation types such as sumac, vines, rose, brambles, and tree seedlings.

50 Water – Rivers, waterways, reservoirs, ponds, bays, estuaries, and ocean.

60 Wetlands – Forested and non-forested wetlands, including tidal flats, tidal and non-tidal marshes, and upland swamps and wet areas.

70 Barren Land

- **71 Beaches** – Extensive shoreline areas of sand and gravel accumulation, with no vegetative cover or other land use.
- **72 Bare Exposed Rock** – Areas of bedrock exposure, scarps, and other natural accumulations of rock without vegetative cover.
- **73 Bare Ground** – Areas of exposed ground caused naturally, by construction, or other cultural processes.

Pollution Prevention Activities Codes

- 21. ODOR:** None(N), Sewage (SE), Sulfur (S), Oil (IL), Gas (G), Rancid-Sour (RS), Other (O)
- 22. COLOR:** Clear (C), Yellow (Y), Brown (B), Green (GR), Red (R), Gray (G), Other (O)
- 23. CLARITY:** Clear (C), Opaque (OP), Cloudy (CD), Other (O)
- 24. FLOATABLES:** None (N), Oil Sheen (OS), Sewage (SE), Trash (T), Other (O)
- 25. DEPOSITS:** None (N), Sediment (S), Oil (IL), Other (O)
- 26. VEG_COND.:** Normal (N), Excessive Growth (EG), Inhibited Growth (IG), Other (O)
- 27. STRUCT_COND:** Normal (N), Concrete Cracking (CC), Concrete Spalling (SP), Other (O)
- 28. EROSION:** None (N), Moderate (M), Severe (S)